UNITED STATES DEPARTMENT OF
COMMERCE
NEWS
WASHINGTON, D.C. 20230

NATIONAL
OCEANIC AND
ATMOSPHERIC
ADMINISTRATION

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NOAA 02-r137
FOR IMMEDIATE RELEASE
Aug. 27, 2002

Scientists Locate A Source of Toxic Algae Off Cape Flattery

A team of scientists from NOAA Fisheries Northwest Fisheries Science Center (NWFSC) and the University of Washington are gaining a better understanding of toxic algae that threatens the livelihood of coastal communities along Washington state's coast. The National Marine Fisheries Service (NOAA Fisheries) is a part of the National Oceanic and Atmospheric Administration (NOAA). The NWFSC provides the science that is needed to conserve and manage the Pacific Northwest's living marine resources and their habitats.

In a study to be published in the September issue of *Limnology and Oceanography (L&O)*, scientists demonstrate evidence showing the origin of *Pseudo-nitzschia,* the algae that produce the neurotoxin domoic acid, is located off the tip of Cape Flattery in the Juan de Fuca eddy.

"It's rare for scientists to have such solid evidence about a site of *Pseudo-nitzschia* initiation," explained study co-author Vera Trainer of NOAA Fisheries NWFSC.

In the paper titled "Biological and Physical Dynamics of Domoic Acid Production off the Washington U.S.A. Coast," Trainer and co-authors Rita A. Horner and Barbara M. Hickey, both in the School of Oceanography at the University of Washington, explain that the Juan de Fuca eddy may be the origin for the algae and the harmful algal blooms that they cause.

Harmful algal blooms have been responsible for beach closures and the loss of millions of dollars in revenue to coastal communities.

Each year, thousands of families from across the Northwest flock to Washington beaches to dig razor clams, a meaty shellfish that is one of the most sought after in the state.

This past spring, recreational razor clam diggers reaped a bumper crop—believed to be the best since 1995—from the Washington coast. The dollars spent by clam diggers in restaurants, motels, RV parks, gas stations and a variety of retail businesses can make the difference in survival for the many businesses in the small coastal communities where the clams are found. According tot he Washington Department of Fish and Wildlife, recreational diggers brought more than $7.7 million to the Washington coast during the 2001-2002 season.

However, the picture has not always been so rosy. Razor clams became toxic in 1998 after feeding on *Pseudo-nitzschia*, leaving authorities with no choice but to close beaches, which stopped digging for more than a year. Coastal and tribal communities were devastated by the loss of revenue.

Perhaps what is most frustrating about harmful algal blooms is their unpredictability. The study, and resulting research by scientists, will give managers vital information to help predict harmful algal blooms.

“This study was the result of cruises with the Olympic Coast National Marine Sanctuary and a collaboration that was initiated through the Olympic Region Harmful Algal Bloom (ORHAB) partnership,” said Trainer, who also serves as ORHAB project lead. ORHAB is a consortium of state and federal government agencies, tribal communities and public interest groups that together investigate the origins of harmful algal blooms and monitor where and when they occur.

“Now we can plan research cruises to carefully study the dynamics of this type of harmful algal bloom knowing that the Juan de Fuca eddy is a likely place for us to find toxic *Pseudo-nitzschia*,” Trainer added.

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